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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,085	02/27/2004	Tetsuya Inui	60919 (70551)	7533

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EXAMINER	
SONG, MATTHEW J	

ART UNIT	PAPER NUMBER
1722	

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05/30/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/789,085	INUI ET AL.	
	Examiner	Art Unit	
	Matthew J. Song	1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 March 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,6 and 8-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4, 6, and 8-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/9/2007 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-3, 6, 8 and 10 are rejected under 35 U.S.C. 103(a) as obvious over Yamazaki (US 2003/0021307 A1).

In an apparatus for crystallizing a semiconductor film, note entire reference, Yamazaki discloses an apparatus comprising a first optical system, which includes a laser oscillation device **301a,** this clearly suggests applicant's light source; a group of lenses **302a**; mirrors **303a,304a** and a lens **305a**, this clearly suggests applicant's objective lens ([0090]-[0094]). Yamazaki also discloses a similar second optical system where a beam can be shaped into an arbitrary form by a group of lenses and if necessary by providing a slit and the like, this clearly suggests applicant's aperture stop plate. ([0092]). Yamazaki also discloses the laser beams emitted from different laser oscillation devise have respectively different phases. ([0093]). Yamazaki also discloses applicable laser oscillation devices are gas laser oscillation devices, such as excimer lasers; and solid laser oscillation devices such as YAG lasers. ([0005]). Yamazaki et al also discloses cylindrical lens **102** for converging a laser beam ([0082]), this clearly suggests applicant's cylindrical lens array. Yamazaki et al teaches using cylindrical lens **102** for converging the laser beam, which clearly suggests applicant's condenser lens.

Yamazaki et al depicts two cylindrical lenses in Fig 1. Yamazaki et al does not teach a cylindrical lens array and a condenser lens, which at a minimum would require three lenses. It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Yamazaki et al by adding additional cylindrical lens because the mere duplication of parts is held to be obvious (MPEP 2144.03) and Yamazaki et al teaches a group of lenses, which clearly suggests that three or more lenses would be obvious to a person of ordinary skill in the art achieve the desired convergence.

Yamazaki et al clearly suggests an array of cylindrical lenses and a condenser lens, which is capable of making irradiance distribution uniform.

Yamazaki does not explicitly teach first laser light and the second laser light have different wavelength. This limitation is viewed as intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. The apparatus disclosed by Yamazaki is capable of performing the claimed intended use because the laser light sources can be controlled to emit any desired wavelength; therefore the first and second laser oscillation sources can be controlled to achieved different wavelengths. Yamazaki's device is capable of different wavelengths because Yamazaki teaches a wavelength converter may be integrated into the laser oscillation device to convert a fundamental wave into a second harmonic wave ([0081]). Also, Yamazaki teaches a plurality of different laser oscillation devices can be used, which have different wavelengths ([0080]).

Referring to claim 2, Yamazaki teaches a second optical system where a beam can be shaped into an arbitrary form by providing a slit, this clearly suggests applicant's aperture stop plate. ([0092]). Yamazaki also teaches a lens **305a**, this clearly suggests applicant's objective lens. Yamazaki is silent to the arrangement of the stop plate, cylindrical lens array and condenser lens (irradiance distribution uniformizing means) and the objective lens. It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Yamazaki to have the stop plate between the cylindrical lens array and the objective lens to converge the laser light prior to shaping.

Referring to claims 3 and 6, Yamazaki does not disclose the arrangement of the stop plate in relationship to the optical axis. Yamazaki discloses using a slit, a plurality of lenses, and a plurality of mirrors to shape and direct a laser beam to a target substrate, note Figure 10 of Yamazaki. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Yamazaki to achieve the claimed arrangement because the beam can be redirected obliquely, perpendicularly or parallel by placement of mirrors.

Referring to claim 6, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Yamazaki to achieve the claimed arrangement because the beam can be redirected obliquely, perpendicularly or parallel by placement of mirrors.

Referring to claim 8 and 10, Yamazaki discloses using a lens.

4. Claims 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki (US 2003/0021307 A1) as applied to claims 1-3, 6, 8 and 10 above, and further in view of Matsushima et al (US 2001/0050271 A1).

Yamazaki teaches all of the limitations of claim 4, as discussed previously, except the trapezoidal shape of the aperture stop plate. Yamazaki does teach different shapes can be formed, which include circular, ellipsoid or rectangular ([0092]).

In an apparatus of processing an optical component using a laser beam, note entire reference, Matsushima et al teaches a beam mask having trapezoidal shape ([0108]-[0112]).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Yamazaki using trapezoidal stop plate because a trapezoidal shape is known

in the art, as taught by Matsushima et al, and changes in shape are held to be obvious (MPEP 2144.03).

5. Claims 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki (US 2003/0021307 A1) as applied to claims 1-3, 6, 8 and 10 above, and further in view of Yamazaki et al (US 2002/0117630 A1).

Yamazaki ('307) teaches all of the claim 9, as discussed previously, except the radiation direction changing means is a prism.

In a laser illumination apparatus, note entire reference, Yamazaki et al ('630) teaches a cylindrical lens may be replaced with a multi-phase prism to decrease the number of lenses in an optical system. Yamazaki et al ('630) also teaches using prism will reduce the loss of light quality and alignment of adjustment of the optical system can be made easier.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Yamazaki ('307) with Yamazaki et al ('630) prism to reduce the loss of light quality and to made the alignment of adjustment of the optical system easier.

Response to Arguments

6. Applicant's arguments with respect to claims 1-4, 6, and 8-10 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed 3/9/2007 have been fully considered but they are not persuasive.

Applicant's argument that the prior art does not teach a first and second laser light having different wavelengths is noted but not found persuasive. The Examiner admits Yamazaki does not explicitly teach first laser light and the second laser light have different wavelength. However, this limitation is viewed as intended use of the apparatus. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. The apparatus disclosed by Yamazaki is capable of performing the claimed intended use because the laser light sources can be controlled to emit any desired wavelength; therefore the first and second laser oscillation sources can be controlled to achieved different wavelengths. Yamazaki's device is capable of different wavelengths because Yamazaki teaches a wavelength converter may be integrated into the laser oscillation device to convert a fundamental wave into a second harmonic wave ([0081]). Also, Yamazaki teaches a plurality of different laser oscillation devices can be used, which have different wavelengths ([0080]).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kusumoto et al (US 6,242,291 B1) teaches condensing a pulsed laser beam by a cylindrical lens and irradiating the laser beam onto a substrate (col 12, ln 30-60).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Song whose telephone number is 571-272-1468. The examiner can normally be reached on M-F 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra Gupta can be reached on 571-272-1316. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Matthew J Song
Examiner
Art Unit 1722

MJS
May 22, 2007

ROBERT KUNEMUND
PRIMARY PATENT EXAMINER
A.U. 117